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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,956	04/27/2007	Paul A. Kohl	5219-091016	1856
7590 The Webb Law Firm 700 Koppers Building 436 Seventh Avenue Pittsburgh, PA 15219				
03/17/2010				
EXAMINER				
GEBREYESUS, YOSEF				
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2811				
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03/17/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,956

Applicant(s)

KOHL ET AL.

Examiner

YOSEF GEBREYESUS

Art Unit

2811

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-50 and 52-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-50 and 52-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/2009 has been entered.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 24-55 are objected to because of the following informalities: Claims 24 on line 6 recites the limitation "a an overcoat" which appears to be "an overcoat". Appropriate correction is required.

4. Claim 24 one lines 4, 6,7 and 8, claim 25 on lines 2 &3, claims 26 on line 1, claims 31 on line 2, claim 37 on line 2, claim 39 on line 5 & 6, claim 46 on line 2, claim 47 on line 2, claim 50 on line 2, claim 52 on line 2 recite the limitation "the sacrificial

layer" which appears to "the thermally decomposable sacrificial layer"; it is suggested to insert --thermally decomposable-- after the word "the", for clarity and consistency.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 31 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 31 on line 2, and claim 37 on line 2 recite the limitation "sacrificial material". However, the claim is indefinite because it is unclear if it is referring the same "a thermally decomposable sacrificial layer" as previously mentioned in claim 1 line 3 or another sacrificial layer or sacrificial material.

8. Claim 26 recites the limitation "the protective layer" in line 3. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 52 recites the limitation "the first overcoat layer" in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. For the purpose of examination, the examiner has interpreted "sacrificial material" to mean the same "a thermally decomposable sacrificial layer" as previously recited in claim 1; and "the protective layer" to mean "the overcoat layer"; "the first overcoat layer" to mean the same "the overcoat layer" layer as previously mentioned in claim 24.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 24-26, 30-36, 40, 50, 52, and 55, as best can be understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002).

13. Regarding **claim 24**, figure 9 (figure 9 is formed with the same steps as figures 1-8 except the opening 32) (paragraph [0021]) and related text of Heck et al. discloses forming a thermally decomposable sacrificial layer 15 and 25 (paragraph [0015]) on a substrate 12 of a micro electro-mechanical device 18, the sacrificial layer 15 & 25 encapsulating a portion of the micro electro- mechanical device 18 (paragraph [0013]) ; forming an overcoat layer (cover) 20(paragraph [0018]) around the sacrificial layer 15 & 25; and thermally decomposing the sacrificial layer (paragraph [0015]), wherein decomposed molecules of the sacrificial layer permeate through the overcoat layer 20 (paragraph [0021]), and wherein a gas cavity 22 (paragraph [0014]) is formed where the thermally decomposable sacrificial layer 15 & 25 was formed.

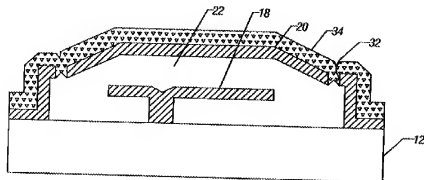


FIG. 9

14. Regarding **claim 25**, figure 9 and related text of Heck et al. discloses depositing the sacrificial layer 15 by spin-coating (paragraph [0015]); and patterning the sacrificial layer (paragraph [0016]).
15. Regarding **claim 26**, figure 9 and related text of Heck et al. discloses wherein the sacrificial layer 15 & 25 has a decomposition temperature less than a decomposition temperature of the substrate and a decomposition temperature of the protective layer (the cover 20 is porous to pass the decomposed layer 15 & 25, which inherently indicates the decomposition temperature of the substrate and the cover is higher than the decomposition temperature of the sacrificial layer, paragraph [0015] & [0021]).
16. Regarding **claim 30**, figure 9 and related text of Heck et al. discloses wherein the overcoat layer (cover) 20 has not been perforated (sealed by sealing material 34) (paragraph [0034]).
17. Regarding **claim 31**, figure 9 and related text of Heck et al. discloses wherein the overcoat layer 20 is substantially free of sacrificial material after the sacrificial material has been thermally decomposed (paragraph [0021] discloses the sacrificial layers 15

and 25 pass through the porous cover 20; thus the overcoat layer 20 is considered free of sacrificial material 15 & 25).

18. Regarding **claim 32**, figure 9 and related text of Heck et al. discloses wherein the overcoat layer 20 provides an airtight (vacuum cavity) enclosure around the gas cavity 22 (paragraph [0014]).

19. Regarding **claim 33**, the limitation "the overcoat layer provides protection from mechanical forces" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

20. Regarding **claim 34**, the limitation "the overcoat layer further provides protection against water" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

21. Regarding **claim 35**, the limitation "the overcoat layer further provides protection against oxygen gas" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an

apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

22. Regarding **claim 36**, the limitation "the overcoat layer further provides protection against exposure to gaseous materials" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

23. Regarding **claim 40**, figure 9 and related text of Heck et al. discloses forming a barrier layer 34 around the overcoat layer 20. The limitation "the barrier layer providing a stronger protection against mechanical forces than the protective layer" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

24. Regarding **claim 50**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except wherein thermal decomposition temperature of the sacrificial material is less than 100 degrees Celsius.

Parameters such as thermal decomposition temperature of the sacrificial material is inherent material property, moreover, there is no evidence that indicates the thermal decomposition temperature of the sacrificial layer to be less than 100 degrees Celsius is critical and it has been held that it is not inventive to discover the optimum workable temperature of a result-effective variable with given prior art conditions by routine experimentation. See MPEP 2144.05 Note that the specification contains no disclosure the critical nature the claimed temperature of any unexpected results there from.

25. Regarding **claim 52**, figure 9 and related text of Heck et al. discloses wherein said gas cavity 22 is formed while decomposed molecules produced by decomposition of the sacrificial layer permeate the first overcoat layer 20 (paragraph [0014] and [0021]).

26. Regarding **claim 55**, figure 9 and related text of Heck et al. discloses wherein said overcoat layer 20 is a solid overcoat layer (metal or dielectric used to form hermetic barrier).

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

29. Claims 27-29, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002) in view of Freidhoff (US 2003/0155643, dated August 21st, 2003, filed February 19th, 2002)

30. Regarding **claims 27 & 28**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except wherein the substrate comprises a silicon material or a non-silicon material.

However, in the same field of endeavor figures 1-12 and related text of Freidhoff discloses the substrate layer 30 comprises silicon (paragraph [0092]) or non silicon material (gallium arsenide).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form Heck et al. 's device substrate with silicon or gallium arsenide material as taught by Freidhoff et al., because in semiconductor manufacturing process, silicon or gallium arsenide are known and conventional for making device substrate.

31. Regarding **claim 29**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except the thickness of the overcoat layer is within the range of 50nm and 500 μ m.

Parameters such as thickness in art of semiconductor manufacturing process are subject to routine experimentation and optimization to achieve the desired device characteristics during fabrication.

However, in the same field of endeavor figures 1-12 and related text Freidhoff discloses the thickness of the overcoat layer (helmet) 54 is 5 μ m (paragraph [0032]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made form an overcoat layer Heck et al.'s device with 5 μ m thickness as taught by Freidhoff in order to make smaller devices (paragraph [0032]).

32. Claim 37, as best can be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002) in view of Gallagher et al. (US 2004/0137728, dated July 15th, 2004, dated September 13th, 2003).

33. Regarding **claim 37**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except wherein the micro electro- mechanical device includes a released mechanical structure before the sacrificial material is formed.

However, in the same field of endeavor, figures 1A-1D of Gallagher et al. discloses forming a released mechanical structure (metal lines) 15 before the sacrificial material 20 is formed (paragraph [0068]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the released structure of Heck et al.'s device before the sacrificial material is formed as taught by Gallagher et al. in order reduce process steps such as patterning the sacrificial layer to form the released structure.

34. Claims 38-39, as best can be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002) in view of Silverbrook (US 2003/0122227, dated July 3rd, 2003, filed January 8th, 2002).

35. Regarding **claim 38**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except before the overcoat layer is formed, attaching the micro electro-mechanical device to a metal packaging frame, wherein the overcoat layer comprises an epoxy resin encapsulating the micro electro-mechanical device and metal packaging frame assembly.

However, in the same field of endeavor figure 23 of Silverbrook discloses before the overcoat layer (protective layer, epoxy) 218 is formed, attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame) (paragraph [0069]).

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the teachings of Heck et al. with the teachings of Silverbrook by attaching the micro electro-mechanical device to an integrated package structure comprising lead frame and forming an epoxy overcoat layer, for the purpose of

forming electrical connection between the MEMS device and external devices and to provide environmental protection.

36. Regarding **claim 39**, figure 9 and related text of Heck et al. discloses heating the micro assembly at a temperature (350°C - 425°C, which is a higher temperature, than the temperature for curing of an epoxy or overcoat layer, supporting document for epoxy curing temperature, see Bentley et al., US 3,639,928 co. 2 lines 38-40) for decomposing the sacrificial layer (paragraph [0015]).

Heck et al. does not disclose heating the micro assembly at a temperature for curing the overcoat layer.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to heat the micro assembly device of Heck et al. at a temperature for curing the overcoat layer (epoxy layer), because it is conventional in the semiconductor manufacturing art to cure an epoxy material for the purpose of making protection layer.

37. Claim 41-42, as best can be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002) in view of Partridge et al. (US 2004/0245586, dated December 9th, 2004, filed June 4th, 2003).

38. Regarding **claim 41**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except the barrier layer comprises a metal material.

However, in the same field of endeavor, figure 12 of Partridge et al. discloses the barrier layer 28b & 28C comprises a metal material (paragraph [0092] & [0093]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the barrier layer of Heck et al.'s device with metal material as taught by Partidge et al. in order to provide good protection for the MEMS device.

39. Regarding **claim 42**, figure 9 and related text of Heck et al. and figure 12 of Partridge discloses creating a vacuum inside the gas cavity by heating the micro electro-mechanical device in a chamber (paragraph [0014] and [0015]); and after the vacuum is created, forming a barrier layer (sealing material) 34 around the overcoat layer (cover) 20 within the chamber to provide a vacuum-packed enclosure around the gas cavity 22, the barrier layer 34 comprising a metal material.

40. Claims 43-45, and 47-49, as best can be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. and Partridge et al. in view of Silverbrook (US 2003/0122227, dated July 3rd, 2003, filed January 8th, 2002).

41. Regarding **claim 43-45**, figure 9 and related text of Heck et al. and figure 12 of Partridge et al. substantially disclose the claimed invention except after the barrier layer is formed, attaching the micro electro-mechanical device to an integrated circuit package structure; and encapsulating the electro-mechanical device and integrated circuit package structure in a protective coating.

However, in the same field of endeavor figure 23 of Silverbrook discloses attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame); and encapsulating (paragraph [0069]) the electro-mechanical device and integrated circuit package structure comprising ceramic package (paragraph [0002]).

Therefore in view of such teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck et al.'s and Partridge et al.'s with the teachings of Silverbrook by attaching the micro electro-mechanical device to an integrated package structure comprising lead frame and ceramic package for the purpose of forming electrical connection between the MEMS device and external power supplies and to provide an additional mechanical and environmental protection.

42. Regarding **claim 47**, figure 9 and related text of Heck et al. discloses after the sacrificial layer 15 & 25 is decomposed (paragraph [0015]) encapsulating the electro-mechanical device and package structure in a protective coating 34 (paragraph [0021]).

Heck et al. do not disclose attaching the micro electro-mechanical device to an integrated circuit package structure.

However, in the same field of endeavor, figure 23 of Silverbrook discloses attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame) (paragraph [0069]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck et al.'s with the teachings

of Silverbrook by attaching the micro electro-mechanical device to an integrated circuit package structure for the purpose of forming external connection.

43. Regarding **claim 48-49**, figure 9 and related text of Heck et al. substantially discloses the claimed invention except the integrated circuit package structure comprises a leadframe and a ceramic package.

However, in the same field of endeavor figure 23 of Silverbrook discloses an integrated circuit package structure comprises 216 (lead frame) (paragraph [0069]) and a ceramic package (paragraph [0002]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck et al.'s with the teachings Silverbrook by attaching the MEMS device to a lead frame and ceramic package for the purpose of connecting to external devices and form good device protection.

44. Claim 46, as best can be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. and Partridge et al. in view of Barth et al. (US 2006/0014374, dated January 19th, 2006, filed June 3rd, 2003).

45. Regarding **claim 46**, figure 9 and related text of Heck et al. and figure 12 of Partridge et al. substantially disclose the claimed invention except the step of thermally decomposing the sacrificial layer occurs inside the vacuum chamber.

However, in the same field of endeavor, figure 1E of Barth et al discloses the method of decomposing the sacrificial layer 112 (paragraph [0062]) inside the vacuum chamber (paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck et al.'s and Partridge et al.'s with the teachings of Barth et al. to thermally decompose the sacrificial layer inside a vacuum chamber for the purpose of forming particle free cavity.

46. Claims 53-54, as best can be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002) in view of Chanchani (US 2007/0158787, dated July 12th, 2007, filed November 13th, 2003).

47. Regarding **claim 53-54**, figure 9 and related text of Heck et al. substantially disclose the claimed invention except the overcoat layer comprises a photodefinable polymer.

However, in the same field of endeavor, figure 4A-AE of Chanchani discloses the overcoat layer (glue material) 231 comprises a photodefinable polymer (paragraph [0033]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use photodefinable polymer as taught by Chanchani because such materials are conventional in the art for forming coat layers. Since Chanchani teaches that photodefinable polymer is conventional coat material, It has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v.

Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Response to Arguments

48. Applicant's arguments with respect to claims 24-50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSEF GEBREYESUS whose telephone number is (571)270-5765. The examiner can normally be reached on Monday through Thursday 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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03/08/2010